COSC 2425.40001 Syllabus
Eastfield College

Instructor Information
Name:
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Office Location: L315
Office Hours: Monday – Thursday 8:00am – 9:30am
Division Office and Phone: STEM Division, C-Building, Room 202 | 972-860-7297

Course Information
Course Title: Computer Organization
Course Number: COSC 2425
Section Number: 40001
Semester/Year: Spring 2020 March 24 – May 13
Credit Hours: 4
Class Meeting Time/Location: Monday/Wednesday 9:30am – 12:20pm - Room TBA
Certification Date: 3/30/2020
Last Day to Withdraw: 5/01/2020

Course Prerequisites
COSC 1436

Course Description
The organization of computer systems is introduced using assembly language. Topics include basic concepts of computer architecture and organization, memory hierarchy, data types, computer arithmetic, control structures, interrupt handling, instruction sets, performance metrics, and the mechanics of testing and debugging computer systems. Embedded systems and device interfacing are introduced. (This course is included in
the Field of Study Curriculum for Computer Science.) COSC 2425 will satisfy the
Associate in Sciences degree general elective requirement. This course will fulfill
degree requirements established by the colleges of DCCCD only if this course has been
successfully completed and the date of completion does not exceed 10 years. (3 Lec., 3
Lab.)

**Student Learning Outcomes**

1. Understand computer architecture and organization
2. Understand memory hierarchy
3. Understand CPU data types used in Assembly programming
4. Understand CPU arithmetic used in Assembly programming
5. Understand interrupt handling
6. Understand CPU instruction sets
7. Understand debugging and testing Assembly programs

**Texas Core Objectives**

The College defines essential knowledge and skills that students need to develop
during their college experience. These general education competencies parallel the
Texas Core Objectives for Student Learning. In this course, the activities you engage in
will give you the opportunity to practice two or more of the following core competencies:

1. **Critical Thinking Skills** - to include creative thinking, innovation, inquiry, and
   analysis, evaluation and synthesis of information
2. **Communication Skills** - to include effective development, interpretation, and
   expression of ideas through written, oral, and visual communication
3. **Empirical and Quantitative Skills** - to include the manipulation and analysis of
   numerical data or observable facts resulting in informed conclusions
4. **Teamwork** - to include the ability to consider different points of view and to work
   effectively with others to support a shared purpose or goal
5. **Personal Responsibility** - to include the ability to connect choices, actions, and
   consequences to ethical decision-making
6. **Social Responsibility** - to include intercultural competence, knowledge of civic
   responsibility, and the ability to engage effectively in regional, national, and
   global communities

**Required Course Materials**

No textbook is required – will use free online materials. USB flash drive needed for
saving programs. The free Java SDK will be used for compiling programs. For editing
programs, TextPad will be used, but you may use an editor of your choice on your home computer or laptop.

**Graded Work**

The tables below provide a summary of the graded work in this course and an explanation of how your final course grade will be calculated.

**Summary of Graded Work**

<table>
<thead>
<tr>
<th>Assignments</th>
<th>Weight</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seven Homework Assignments</td>
<td>700 points</td>
<td>70%</td>
</tr>
<tr>
<td>Two Exams</td>
<td>300 points (150 each)</td>
<td>30%</td>
</tr>
</tbody>
</table>

**TOTAL:** 100%

**Final Grade**

<table>
<thead>
<tr>
<th>Percentages</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>900-1000 points</td>
<td>A</td>
</tr>
<tr>
<td>800-899 points</td>
<td>B</td>
</tr>
<tr>
<td>700-799 points</td>
<td>C</td>
</tr>
<tr>
<td>600-699 points</td>
<td>D</td>
</tr>
<tr>
<td>0-599 points</td>
<td>F</td>
</tr>
</tbody>
</table>

**Description of Graded Work**

Homework 1: Logic gates  
Homework 2: Binary and data representation  
Homework 3: Using variables and calling C++ functions in assembly  
Homework 4: Data movement, arithmetic, and bitwise operators in assembly  
Homework 5: Control flow in assembly  
Homework 6: Using the hardware stack in assembly  
Homework 7: Capstone project to create game and demo to class  
Exams: Multiple choice questions with a 90 minute time limit

**Attendance and Your Final Grade**

(Does not apply to online classes) You are expected to regularly attend all classes in which you are enrolled. Students have the responsibility to attend class and to consult with the instructor when an absence occurs.
Late Work Policy
Late homework assignments are accepted but 10 point will be deducted for each day late.

Standard of Conduct/Classroom Etiquette
No food, drinks or tobacco products are allowed in Eastfield College classrooms. However, if your class is in a non-lab classroom, your instructor may allow food or drink.

Additional Resources
Tutoring Services (https://www.eastfieldcollege.edu/services/academic-support/tutoring/pages/default.aspx) are provided for Mathematics and Developmental Mathematics in the Eastfield library, Building L, Room 200. Students are encouraged to take advantage of this service for additional help in their course work. Visit the link above or call 972-860-7174 for more information on tutors, hours of operation and policies.

Other Course Policies
None

Institutional Policies
Institutional Policies relating to this course can be accessed using the link below. These policies include information about tutoring, Disabilities Services, class drop and repeat options, Title IX, and more.

Eastfield Institutional Policies (http://www.eastfieldcollege.edu/syllabipolicies)
## Course Content

<table>
<thead>
<tr>
<th>Section</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Logic gates, Instruction Cycle, X86 CPU</td>
</tr>
<tr>
<td>2</td>
<td>Data Representation, Memory</td>
</tr>
<tr>
<td>3</td>
<td>Assembly – variables, arithmetic, calling C++ functions, bitwise operators</td>
</tr>
<tr>
<td>4</td>
<td>Assembly – control flow</td>
</tr>
<tr>
<td>5</td>
<td>Assembly – hardware stack, function calling convention</td>
</tr>
<tr>
<td>6</td>
<td>Capstone project to create game and demo to class</td>
</tr>
</tbody>
</table>

## Course Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Logic Gates</td>
<td>Homework 1</td>
</tr>
<tr>
<td>2</td>
<td>Binary and data representation</td>
<td>Homework 2</td>
</tr>
<tr>
<td>3</td>
<td>Using variables and calling C++ functions in assembly</td>
<td>Homework 3</td>
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<tr>
<td>5</td>
<td>Control flow in assembly</td>
<td>Homework 5</td>
</tr>
<tr>
<td>6</td>
<td>Using the hardware stack in assembly</td>
<td>Homework 6</td>
</tr>
<tr>
<td>7</td>
<td>Function calling convention</td>
<td></td>
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<tr>
<td>8</td>
<td>Capstone project – work on game</td>
<td>Homework 7</td>
</tr>
</tbody>
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